

Remarks:

Reconsideration of the application is requested.

Claims 1-19 remain in the application. Claim 3 has been amended. A marked-up version of claim 3 is attached hereto on a separate page.

In item 4 on page 2 of the above-identified Office action, claim 3 has been rejected as being indefinite under 35 U.S.C. § 112.

More specifically, the Examiner has stated that the term "issue" in claim 3 is vague and indefinite. The Examiner further stated that the term "issue" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is noted that it is very clear that the term "issue" refers to an opening, as can be seen from the figures. Furthermore, the term "issue" as defined in Webster's Third New International Dictionary (of the English Language Unabridged) Vol. 2, is: A means of going out from something: EXIT, OUTLET, VENT. Furthermore, it is noted that the term "issue" is a suitable translation for the German word Mündung. However, since it may not be the most appropriate

translation for the application, the claim and the specification have been amended so as to facilitate prosecution, and therefore the rejection is now moot.

It is accordingly believed that the specification and the claims meet the requirements of 35 U.S.C. § 112, first and second paragraphs. Should the Examiner find any further objectionable items, counsel would appreciate a telephone call during which the matter may be resolved. The above-noted changes to the claims are provided solely for cosmetic or clarificatory reasons. The changes are not provided for overcoming the prior art nor for any reason related to the statutory requirements for a patent.

In item 6 on page 3 of the Office action, claims 1-7 have been rejected as being fully anticipated by Desmarchais et al. (U.S. Patent No. 3,294,453) under 35 U.S.C. § 102.

As will be explained below, it is believed that the claims were patentable over the cited art in their original form and the claims have, therefore, not been amended to overcome the references.

Before discussing the prior art in detail, it is believed that a brief review of the invention as claimed, would be helpful.

Claim 1 calls for, inter alia:

"maintaining a fluid flow out of the first vessel into the first part of the connecting element; and transporting the article through the connecting element with the fluid flow being maintained."

The Desmarchais et al. reference discloses a hydraulic transfer of an article to be moved via the pipe line system arranged between the vessels. The Desmarchais et al. reference further discloses that the article to be transferred is placed into the transfer tube (32) and then the transfer tube (32) is hermetically seal with respect to the surroundings and also with respect to the fluid in the basin (15). Next the valves (132 and 134) are opened allowing water from the spent fuel pit (28) to flow through the conduits (134 and 136), whereby the article present in the transfer tube is moved to the tilting device (42) by the force of the water due to the static pressure head in the spent fuel pit (28). The article can thus be placed in the spent fuel pit (28) (column 6, lines 15-57).

Clearly, the reference does not show maintaining a fluid flow out of the first vessel into the first part of the connecting element; and transporting the article through the connecting

element with the fluid flow being maintained, as recited in claim 1 of the instant application.

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The goal of the invention of the instant application is to transfer an article, in particular a nuclear fuel element between two fluid filled vessels, in which a fluid exchange between the two vessels is to be avoided in a particularly reliable manner. More specifically reference is made to the application in a nuclear power plant where boron-containing water is kept in one of the vessels and pure or demineralized water is kept in the other vessel. When transferring articles between the two vessels, it must be ensured, that no medium can flow from the first into the second vessel or vice versa. This is particularly advantageous, as the boron-containing water can only be refilled with great expenditure, when lost.

In view of this goal the invention of the instant application seeks to avoid the inflow of fluid into a vessel by maintaining a fluid flow from the respective vessel via the respective connecting opening. Claim 1 states in regard to this matter "maintaining a fluid flow out of the first vessel into the first part of the connecting element; and transporting the article through the connecting element with the fluid flow being maintained". Therefore, the fluid flow is maintained, thus preventing the inlet fluid from the second vessel 15 from entering the first vessel 10, due to a counter

flow barrier. In another embodiment of the invention, fluid can be discharged continuously from each of the two vessels, whereby both of the fluids may be removed at the extraction point 80 and routed to the preparation plant 105 for recycling. In both embodiments fluid from each vessel is prevented from entering the opposite vessel. This can be recognized by the limitation of "maintaining fluid flow out of the first vessel", which literally expresses that the flow barrier is established by a permanent fluid flow from the respective vessel into the transfer system (and if necessary recycled in the preparation plant 105).

In view of this fundamental concept as well as the quoted claim language, the subject matter of the application differs principally from the Desmarchais et al. reference. Even though the reference pertains to a transfer system with which nuclear fuel elements are transferred from the actual nuclear core to a neighboring storage basin, the process is contrary to the claimed process, as it does not strictly separate the fluid present in both basins

Even though the system is directed to a comparatively simple transport of an article to be transferred, there is no provision for a reliable separation of the fluids in the two vessels. On the contrary, it is expressly stated that in the system there is a transfer of fluid, which is inevitable and

it is appreciated that as the process continues, the shielding liquid will be progressively depleted and must be replenished from time to time (column 7, lines 11-23). This is the exact situation that the invention of the instant application seeks to avoid.

Furthermore, a structural review of the Desmarchais et al. reference makes the difference more apparent. Contrary to the Examiner's opinion, in the reference a fluid flow is not maintained out of the first vessel during the transfer process. On the contrary, as already pointed out above, it is expressly stated that prior to transfer, the transfer tube is hermetically sealed with respect to the surroundings and also with respect to the fluid in the basin (15 i.e. "first vessel"). The transport of the article in the transport tube is effected by water from the spent fuel pit (28 i.e. "second vessel") flowing through the conduits (134 and 136), whereby the article present in the transfer tube is moved to the tilting device (42) by the force of the water due to the static pressure head in the spent fuel pit (28). Therefore, during this transport process, there is no flow from the first vessel (basin 15) since the transfer tube is sealed from the basin.

It is accordingly believed to be clear that none of the references, whether taken alone or in any combination, either

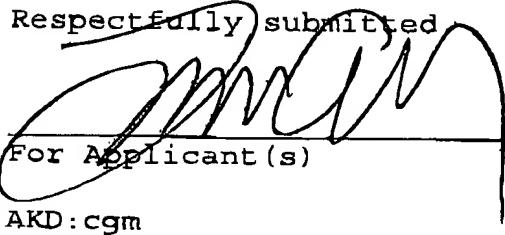
show or suggest the features of claim 1. Claim 1 is, therefore, believed to be patentable over the art and since all of the dependent claims are ultimately dependent on claim 1, they are believed to be patentable as well.

In view of the foregoing, reconsideration and allowance of claims 1-7 are solicited.

In the event the Examiner should still find any of the claims to be unpatentable, counsel respectfully requests a telephone call so that, if possible, patentable language can be worked out.

Petition for extension is herewith made. The extension fee for response within a period of one month pursuant to Section 1.136(a) in the amount of \$110 in accordance with Section 1.17 is enclosed herewith.

Please charge any other fees which might be due with respect to Sections 1.16 and 1.17 to the Deposit Account of Lerner & Greenberg P.A., No. 12-1099.

Respectfully submitted  
  
For Applicant(s)  
AKD:cgm

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Marked-up version of the claims:

Claim 3 (amended). The method according to claim 2, which further comprises:

providing a first [issue] opening of the connecting element in the first vessel and a second [issue] opening of the connecting element in the second vessel; and

setting an essentially identical static pressure before the first fluid flow and the second fluid flow are generated.

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Marked-up version of the specification:

Replace the paragraph between page 8, lines 12-17 with the following:

--In accordance with another feature of the invention, the method can include providing a first [issue] opening of the connecting element in the first vessel and a second [issue] opening of the connecting element in the second vessel; and setting an essentially identical static pressure before the first fluid flow and the second fluid flow are generated.--

Replace the paragraph between page 10, line 13 and page 11, line 2 with the following:

In accordance with another feature of the invention, the apparatus can feature a first [issue] opening of the connecting element in the first vessel; and a first pressure measuring device for measuring a first pressure in the first vessel level with the first [issue] opening. In addition, the apparatus can include a second [issue] opening of the connecting element in the second vessel; and a second pressure-measuring device for measuring a second pressure in the second vessel level with the [issue] opening of the connecting element.--

Replace the paragraph between page 14, lines 3-8 with the following:

--According to a development of the method, before the first or the second or the first and the second fluid flows are generated, an essentially identical static pressure is set at a first [issue] opening of the connecting element in the first vessel and at a second [issue] opening of the connecting element in the second vessel.--

Replace the paragraph between page 19, lines 13-21 with the following:

--Other developments of the apparatus have a first pressure-measuring device for measuring a first pressure in the first vessel level with the [issue] opening of the connecting element. The apparatus also could include a second pressure-measuring device for measuring a second pressure in the second vessel level with the [issue] opening of the connecting element. When the first and the second pressures are known, the driving force, which could lead to a fluid exchange between the vessels, can be deduced.--

Replace the paragraph between page 20, lines 12-19 with the following:

--Another development of the apparatus likewise allows a compensation of a pressure difference that may possibly be present between the vessels. For this purpose, an outflow orifice of an outflow pipe is present in each case level with the [issue] opening of the connecting element. The outflow pipes issues into a common pipe. In turn, the common pipe leads to the extraction device and, in particular, issues in the extraction line. The pipe may have, in particular, a valve.--

Replace the paragraph between page 25, lines 7-24 with the following:

--The connecting element 48 is in the form of a tube. A first closing-off device 52 is located at a first [issue] opening 50 of the connecting element 48 into the reactor pit 10. A second closing-off device 57 is located at a second [issue] opening 55 of the connecting element 48 into the fuel element storage pond 15. A transport device 60 is movable in the interior 58 of the connecting element 48, by means of which transport device an article 62 can be transported through the connecting element 48. In the exemplary embodiment illustrated, the article 62 is a fuel element and is designated as such below. The transport device 60 may, for example, be a rail-bound truck, on which, as illustrated, the

fuel element 62 is transported, lying horizontally, through the connecting element 48. During the times when the connecting element 48 is not used for the transport of fuel elements, the connecting element 48 can be closed off with the aid of the first and the second closing-off devices 52 and 57, and the interiors 43, 44 of the reactor pit 10 and of the fuel element storage pond 15 can thus be separated from one another in a fluid-type manner.--

Replace the paragraph on page 26, lines 12-15 with the following:

--The first pressure measuring device 70 comprises a first effective-pressure line 70A which, by means of a first orifice 70B, receives a first pressure  $p_1$  in the interior 43 of the reactor pit 10 (in the boron-containing water B) in the vicinity of the first [issue] opening 50.--

Replace the paragraph between page 26, line 17 and page 27, line 5 with the following:

--The first effective-pressure line 70A is connected to an evaluation unit 77 via a first valve 70C. Likewise connected to the evaluation unit 77 is a second effective-pressure

line 75A. The second effective-pressure line 75A belongs to the second pressure-measuring device 75 and terminates with a second orifice 75B in the vicinity of the second [issue] opening 55 of the connecting element 48 in the fuel element storage pond 15. The second pressure measuring device 75 records a second pressure  $p_2$  in the demineralized water D. The second pressure-measuring device 75 has a second valve 75C. The orifices 70B, 75B are arranged exactly at the (geodetic) height of the [issue] opening 50 and 55, in order to avoid the influence of different densities at the measuring locations.--

Replace the paragraph between page 33, line 9 and page 34, line 5 with the following:

-- The second exemplary embodiment of an apparatus according to the invention, as illustrated in Fig. 2, demonstrates another possibility for bringing about pressure compensation between the vessels 10, 15, for example, as already described, before the closing-off devices 52, 57 are opened. In contrast to the exemplary embodiment illustrated in Fig. 1, no pressure measuring devices 70, 75 are necessary. Instead, first outflow pipe 120 and a second outflow pipe 130 are inserted. The outflow orifices 120A, 130A of which are arranged respectively in the vicinity of the first [issue] opening 50 and of the second [issue] opening 55 of the connecting element 48. The outflow orifices 120A, 130A are located exactly at

the geodetic height of the [issue] opening 50 and 55. The diameters of the outflow pipes 120, 130 are considerably smaller than a diameter of the connecting element 48. The outflow pipes 120, 130 are led, via a first nonreturn valve 122 and a second nonreturn valve 132 and also via a first flowmeter 124 and a second flowmeter 134, so as to issue into a common pipe 140. The pipe 140, in turn, issues in the extraction line 99A in the vicinity of the extraction point 80. The pipe 140 is led via a valve 142. --